REMARKS

Applicant confirms the election without traverse of claims 32-41; consequently claims 1-31 are withdrawn from examination as directed to non-elected claims. Claims 32-41 have been amended; no new matter is introduced. Entry and reconsideration of the claims are respectfully requested.

Page 2 of the Office Action states that the drawings are objected to under 37 C.F.R. §1.83(a). It is further stated that the drawings must show every feature of the invention specified in the claims and that "the first device operative to display the first electrophysiological characteristic and a second device operative to display the second electrophysiological characteristic must be shown for the feature(s) cancelled from the claim(s)." This objection is traversed.

The attention of the Office is invited to FIG. 1 in which element 185 is designated "result." Furthermore, at the end of paragraph [0069] on page 24, it is stated "the results are then sent to the CPU 180 to give a test result 185." Furthermore, paragraph [0135] states "devices to measure or display the electrophysiological characteristics of tissue and the differences between normal and abnormal tissue may include those known in the art such as electrical meters, digital signal processors, volt meters, oscillators, signal processors, potentiometers, or any other device used to measure or display voltage conductance, resistance or impedance." (Emphasis added)

It is respectfully suggested that the drawing and disclosure of the application as filed incorporate "every feature of the invention specified in the claims." Withdrawal of this objection is respectfully requested.

On page 3 of the Office Action, the Office requests that a new Abstract should be submitted disclosing "only the invention that remains in the elected claims, and should not

refer to the invention of the non-elected invention." In that regard, Applicant encloses an amended version of the Abstract in which references to the non-elected invention have been deleted. Entry of the amended Abstract, consideration thereof and withdrawal of the objection are respectfully requested.

As a prelude to a detailed analysis and response to the Office Action, it is noted that the claims have been amended specifically to require the claimed method and apparatus be directed to transepithelial measurements versus merely electrophysiological measurements. This important difference can be appreciated by considering the discussion and analysis provided by the inventor in the Background Section of the application as well as in the Summary of the Invention beginning with paragraph [0029], page 12. As further discussed in detail below, this feature or characteristic of the electrophysiological measurement sets the present invention apart from the art relied on as further discussed in detail below.

Claims 32-34 are rejected under 35 U.S.C. §102(b) as being anticipated by *Long, Jr., et al.* (U.S. 5,697,369, hereinafter referred to as "*Long*"). The Office states that *Long* discloses a method for screening or sensing a bodily condition by measuring a first electrophysiological characteristic of tissue to be treated, applying a treatment, measuring a second characteristic, comparing the two characteristics and determining the efficacy of treatment. With respect to each feature in the claims, the Office has identified a specific disclosure in *Long*. Furthermore, the Office identifies a further disclosure in *Long* wherein radiation therapy is disclosed. Additionally, regarding claim 34, the Office states that *Long* discloses "applying a treatment to an area of tissue (Cols. 9-10, lines 62-4), measuring an electrophysiological characteristic and comparing the values to initial levels, which

can be viewed as pre-determined values (Col. 10, lines 6-11), determining the efficacy of the treatment (See Cols. 9-10, lines 62-14)." This rejection is traversed.

Applicant wishes to point out that it is important to recognize that the disclosure in *Long* is not directed to merely any measurement for determining the efficacy of treatment. In this regard, *Long* identifies a specific measurement, referred to by the letters "MVD." This term is identified in Col. 7, lines 32-54 as the maximum voltage differential (MVD), which is further defined as the maximum average voltage value obtained during the measurement period subtracted from the maximum average voltage value obtained for the same period where two or more electrodes are recording voltages from a test area." In other words, *Long* discloses that MVD can be used as a means of measuring the effectiveness of a course of treatment. However, this does not suggest that different or alternative electrophysiological measurements can suitably be used for determining the efficacy of treatment. In particular, Applicant uses a combination of DC potential and impedance of the epithelium associated with voltage-measuring electrodes at a plurality of frequencies. In other words, even as recognized by *Long*, electrical measurements associated with the body of a living organism are highly complex and subject to local effects, distortions, and wide variations. (Col. 2, lines 10-63) Furthermore, *Long* specifically notes "accurate measurement of DC biopotentials for sensing or screening for disease, injury or bodily functions is very difficult to accomplish, for the DC potentials to be sensed are of a very low amplitude." (Col. 2, lines 50-53) Additionally, *Long* relies on a method of chemically or physically abrading a surface layer of skin in order to facilitate the measurements described therein. (Col. 10, line 46- Col. 12, line 41) Thus, it can be seen that *Long* focuses on the use of MVD as a means of conducting the analysis

described in that patent and the methods associated with such measurements are specifically directed to maximizing the accuracy of the voltage readings described therein. In contrast, the present invention is directed to very different electrophysiological measurements and there is no suggestion in the art that the present measurements could be used in the manner described in the instant claims.

In particular, electrophysiological measurements specifically directed to transepithelial tissue are unique and provide unique information with unexpected accuracy and benefits, especially as regards the efficacy of treatment, as shown in detail in the specification. Surface skin measurements or measurements of resistance through an organ or generally through tissue cannot provide the specific information available from transepithelial measurements. For example, since most cancers are found in such tissue, Applicant's measurements directed to such tissue provide important information unappreciated by the prior art, as evidenced by the disclosure of *Long*.

In conclusion, Applicant has pointed to differences between *Long* and the present claims, which differences are sufficient to preclude finding that claims 32-34 are anticipated by *Long*. Further, Applicant has identified and discussed differences between *Long* and the present invention because such differences are relevant to further claim rejections in the Office Action based on obviousness. It is respectfully requested that the Office keep these arguments in mind when considering the additional remarks and arguments below. However, in view of the above analyses and remarks, withdrawal of this rejection is respectfully requested.

Claim 40 is rejected under 35 U.S.C. §102(e) as being anticipated by *Kaiser* (U.S. 6,363,275, hereinafter referred to as "*Kaiser*"). The Office states that *Kaiser* teaches a device

for detecting and characterizing tissues that includes two electrodes (elements 12 and 13 in FIG. 1), that produce two separate signals and are "viewed as" two separate electrophysiological characteristics, and each electrode is capable of measuring a characteristic of an area of tissue to be treated and an area of normal tissue. *Kaiser* also teaches a device operative to determine the difference between the characteristics (See Col. 2, lines 6-10)." This rejection is respectfully traversed.

For purposes of the following analysis, claim 40 (as amended) is reproduced below:

"40. An apparatus for determining the efficacy of a form of treatment comprising:

a first electrode for measuring a first transepithelial electrophysiological characteristic of an area of tissue to be treated;

a second electrode for measuring a second transepithelial electrophysiological characteristic of an area of normal tissue;

a device operative to determine the difference between the first and second transepithelial electrophysiological characteristics."

It is important to note that claim 40 utilizes a first electrode for measuring a transepithelial electrophysiological characteristic of an area of tissue to be treated and a second electrode for measuring a second transepithelial electrophysiological characteristic of an area of normal tissue. In contrast, the Office has extrapolated the disclosure in *Kaiser* to reach some of the elements of the above claim, although *Kaiser* does not disclose those same elements. On this basis alone, a rejection under § 102(e) is inappropriate. In particular, the electrodes identified as elements 12 and 13 in FIG. 1 of *Kaiser* merely allow for the measurement of an electrical characteristic through the breast of a patient via a

plane formed by the diametrically opposed electrodes 12 and 13. There is no disclosure or suggestion in *Kaiser* of independently measuring the characteristics of the areas of tissue subject to each of the electrodes in the manner described in instant claims and comparing them as required. Furthermore, there is no suggestion of measuring a transepithelial characteristic. Additionally, the Office suggests that *Kaiser* teaches a device operative to determine the difference between the characteristics." However, the portion of *Kaiser* identified in the Action, Col. 2, lines 6-10, does not describe the process of obtaining a difference in measurements between the two electrodes as suggested in the Action. Thus, it can be seen that *Kaiser* cannot anticipate claim 40 since it is missing all of the essential features of this claim. Withdrawal of this rejection is respectfully requested.

Claims 35-37 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Long* in view of *Organ* (U.S. 6,122,544, hereinafter referred to as "*Organ*"). *Long* is said to disclose the claimed method steps except for determining the electrophysiological characteristic of a second area of tissue that is comprised of normal tissue. To cure this deficiency, the Office relies on *Organ*, which is said to disclose a method for detecting and diagnosing diseases and teaches it is known to take impedance measurements of a diseased tissue site and a normal tissue site and to compare the values (See Col. 2, lines 46-60), to provide a good control for determining the efficacy of the treatment method and also allows for the condition to be tracked over an extended period of time. The Office concludes that it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device of *Long* with a step of testing two separate areas of tissues, one of which can be diseased and the other is normal tissue, as taught by *Organ*, to provide a good control for determining the

efficacy of the treatment method and also allows for the condition to be tracked over an extended period of time. This rejection is traversed.

It is important to recognize that the advance presented in *Organ* is directed to the use of electrical measurements of two anatomically homologous body regions, such as the two breasts of a woman. In so doing, *Organ* teaches that the presence of a diseased condition (such as cancer) in one breast can be compared to normal tissue presumably present in the second breast whereas the overall nature of the tissue in each body part is sufficiently similar so that the diseased component primarily will influence the result. *Organ* does not suggest that any use can be made of a region of normal tissue in a single breast for comparison of a diseased area in the same breast, nor that any other area of normal, different tissue can be used as a reference. The Office has further suggested that the use of such area of normal tissue as taught by *Organ* can be used to modify the device and method disclosed by *Long* in order to provide "a good control" for determining the efficacy of treatment. However, *Long* does not suggest that the methods of its invention are lacking in any manner thus requiring the use of a "good control." Furthermore, the teaching of *Organ* is inadequate with regard to the use of any other area of normal tissue for the determination of an area of tissue in which there is a diseased state. Specifically, in the absence of a "homologous body part," the method of *Organ* is irrelevant.

Finally, regarding claim 37, the Office suggests that "although not specifically taught by *Organ*, it would have been obvious to modify the steps of *Long* further with a step of measuring an area of normal tissue near the tissue to be treated in order to provide a more accurate analysis of the tissue because the closer the normal tissue is to the treated tissue,

the more it would exemplify the normal characteristics." This analysis is traversed.

The Office has recognized a specific failure of *Organ* with regard to claim 37 which requires that the second area of tissue "is adjacent to the area of tissue to be treated." However, the extrapolation by the Office is totally missing from *Organ* and cannot be introduced except by the Office's use of the present disclosure in order to identify the missing element. Specifically, *Organ* requires that the areas to be measured must be in "homologous body parts" wherein claim 37 is directed to tissue areas adjacent to one another. Referring to the disclosure of *Organ*, what the Office appears to suggest is to use two adjacent areas, for example, on the same breast of a patient, for measuring electrical properties, whereas *Organ* teaches that such measurements are to be made on tissues in separate, homologous body parts. These discrepancies cannot be avoided by the mere desire to reach the claim elements of claim 37. Regardless of whether the Office believes that the end result would provide a more accurate analysis of tissue, such a belief cannot change the actual disclosure of the reference, and changing the disclosure of *Organ* in this manner would significantly change the way in which that invention operates. Such a change is not permitted according to accepted practice under the MPEP § 2143.01 (VI). Withdrawal of the rejection of claim 37 as well as claims 35 and 36 in view of the combination of *Long* and *Organ* is respectfully requested. The deficiencies of *Long* can be seen not to be cured by the disclosure of *Organ*.

Claim 38 is rejected under 35 U.S.C.§103(a) as being unpatentable over *Long* in view of *Organ* as applied to claim 35 above an further in view of *Kaiser*. This rejection is traversed.

It is observed that claim 38 is dependent on claim 35 discussed immediately above, except that claim 38 further

comprises introducing an agent into the area of tissue to be treated. The Office argues that *Long* as modified, discloses the claimed method steps except for an agent being introduced into the area of tissue being treated. (For purposes of the present response, it is assumed that the Office intends that *Long* is modified by *Organ* as described above.) The Office further states that *Kaiser* teaches a device for detecting and characterizing tumors that includes introducing an agent into the area of tissue to be treated (Col. 2, lines 56-67), to increase the accuracy of the measurements. It is important to recall that *Long* is directed to a method of measuring voltages and resistance of the skin surface, or further as taught in *Kaiser*, the resistance along a plane formed by opposing electrodes. The deficiency of *Long* in this regard, cannot be cured by the introduction of an agent as taught in *Kaiser* for increasing the accuracy of such measurements. Regardless of their accuracy, if indeed such accuracy was improved, the combination cannot create the necessary transepithelial electrophysiological characteristic as required by the present claims. In fact, the agent suggested by *Kaiser* is nothing more than an electrolyte solution which merely has a transient effect on resistance of the tissue being measured. The selective combination of the features relied on by the Office does not teach or suggest the specific elements required by claim 38 which depends directly from claim 35. Withdrawal of this rejection is respectfully requested.

Claim 39 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Kaiser* in view of *Jordan* (U.S. 6,823,230, hereinafter referred to as "*Jordan*"). The Office asserts that *Kaiser* discloses the claimed invention except for a device having multiple output devices for each electrode. This deficiency is said to be cured by *Jordan* which discloses a system and method for diagnostic systems that includes multiple

output devices for display (referring to FIG. 1, elements 18 and 20 as well as FIG. 4, element 412). It is said that such features would be capable of displaying a first electrophysiological characteristic on one monitor, and another electrophysiological characteristic on a different monitor. The Office further argues that the purpose of providing separate display devices is to allow the user of the system to track each electrophysiological characteristic independently and that it would have been obvious to modify the device of *Kaiser* to provide for multiple display devices as taught by *Jordan*, to allow the user of the system to track each electrophysiological characteristic independently. This analysis and rejection is traversed.

To facilitate the following discussion, claim 39 is reproduced below:

"39. An apparatus for determining the efficacy of a form of treatment comprising:

a first electrode for measuring a first transepithelial electrophysiological characteristic of an area of tissue to be treated;

a second electrode for measuring a second transepithelial electrophysiological characteristic of an area of normal tissue;

a first device operative to display the first transepithelial electrophysiological characteristic; and

a second device operative to display the second transepithelial electrophysiological characteristic."

In this aspect of the rejection, the Office argues that *Kaiser* discloses the claimed invention except for the device having multiple output devices for each electrode. However, this assertion is not accurate as discussed in detail above. *Kaiser* does not, in fact, provide for a device having multiple output devices for each electrode. Instead, it provides a means for measuring the electrical resistance in a

plane through an organ, the plane being formed by the positioning of the electrodes at opposite sides of the organ. This is clearly seen in FIG. 1 of *Kaiser* referring to elements 12 and 13, the electrodes forming a plane through the representation of a breast. As discussed in detail in *Kaiser* in FIG. 1, the diametrically opposed electrodes are used to obtain the resistance measurement of the plane and multiple electrodes are used to establish a resistance image (Col. 1, line 64; Col. 2, line 39).

Furthermore, the Office asserts that *Jordan* discloses a system utilizing multiple output devices for display and refers to FIG. 1, elements 18 and 20 as well as FIG. 4, element 412. However, a close reading of *Jordan* and the cited portions thereof, clearly show that the interpretation provided by the Office is not accurate. In particular, the attention of the Office is invited to Col. 3, starting at line 40 and continuing through 58. Elements 18 and 20 are merely illustrations of general purpose computers which are provided in order to permit more than one physician to simultaneously access diagnostic images stored in the computer system. There is no suggestion whatsoever in *Jordan* that the system is designed to permit storage and/or display of independent measurements from different electrodes. Furthermore, as discussed above, even if *Jordan* disclosed such a system, the information being displayed would be nothing more than the resistance images of a plane created by the opposing electrodes in *Kaiser* which measurements are irrelevant to the claims of the instant invention. Finally, there is nothing in the discussion in *Jordan* relating to element 412 (Col. 5, lines 48-67) to suggest or imply what the Office has created in its analysis. The disclosure concerning element 412 merely refers to a video interface and various image storage means, *e.g.*, a VCR, CD recorder, etc. In conclusion, the combination of *Kaiser* and *Jordan* are insufficient to render

obvious claim 39 and withdrawal of this rejection is respectfully requested.

Claim 41 is rejected under 35 U.S.C. §103(a) as being unpatentable over *Long* in view of *Organ* as applied to 36 above, and further in view or *Armato, III, et al.* (U.S. 6,898,303, hereinafter referred to as "*Armato*"). The Office states, "*Long* as modified (presumably by *Organ*) discloses the claimed method steps but does not disclose the method being on a computer-readable medium." *Armato* is said to teach that it is knows to provide for detection of lesions in a tissue on a computer-readable medium (Cols. 5-6, lines 65-3) in order to make the procedure more streamlined and accurate for the user of the system. The Office asserts that it would have been obvious to further modify the device and method of *Long* with a computer-readable medium for performing the method steps as taught by *Armato* in order to make the procedure more consistent, repetitive and accurate for the user of the system. This rejection is traversed.

The combination of *Long* and *Organ* is deficient for the reasons discussed above and therefore does not provide for the underlying measurements which are said to be made more consistent, repetitive, and accurate for the user of the system as described in *Armato*. In particular, it is noted that *Armato* refers only to utilizing a computer-readable medium in order to analyze the two- and three-dimensional CT scans of diseased living tissue. There is no suggestion in *Armato* that a computer-readable medium can be used to integrate a system in which measurements involve time-distributed data based on the treatment of tissue and further involving a database relating to such treated tissue and comparing the results to normal or untreated tissue. In other words, there is nothing in *Armato* to suggest that a system involving the complexity of the present system can or should be adapted to a computer-readable medium in

order to facilitate analysis of the underlying data. *Armato* is a use-specific application and there is nothing in the reference to suggest that it can or should be applied to a different system or combination of data or how such a change can be accomplished. The Office has extrapolated the teaching in *Armato* in order to obtain the desired end result set forth in the present claims without any suggestion that such a transformation is feasible or how it can be accomplished. Importantly, as noted above, the underlying measurements as set forth in the method and claims set forth above are absent in the combination of *Long* in view of *Organ*, and therefore *Armato*, even if applied to that combination, necessarily gives an insufficient result. In other words, the combination of references is incapable of rendering claim 41 obvious. Withdrawal of this rejection is respectfully requested.

The four prior art patent reference made of record and not relied upon are noted.

As it is believed that all of the rejections set forth in the Official Action have been fully met, favorable reconsideration and allowance are earnestly solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone Applicant's attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

If there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

Dated: June 29, 2006

Respectfully submitted,

By _____
Harvey L. Cohen
Registration No.: 28,365
LERNER, DAVID, LITTENBERG,
KRUMHOLZ & MENTLIK, LLP
600 South Avenue West
Westfield, New Jersey 07090
(908) 654-5000
Attorney for Applicant

671436_1.DOC